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ABSTRACT

This booklet is comprised of eight courses for fire science which were identified as common-core by a statewide fire science education advisory council composed of experts in the field of fire science education in Arizona. Common-core courses included are (1) Introduction to Fire Protection, (2) Introduction to Fire Prevention, (3) Introduction to Fire Suppression, (4) Fire Operations I, (5) Fire Operations II, (6) Fire Hydraulics, (7) Fire Apparatus, and (8) Fire Fighting Tactics and Strategy. Each course is presented in a summary table which provides an inventory of minimum competencies and skills stated in behavioral terms. In addition to competencies and skills, each table provides the International Fire Service Training Association Reference Manual numbers and where further information concerning this competency may be found. Reference numbers are provided that indicate the national certification standard that is relevant to the competency. The level of achievement required for national certification in the Fire Fighter I and Fire Fighter II categories is designated. (LRA)

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COMPETENCY-BASED COMMON-CORE CURRICULUM
FOR
FIRE SCIENCE EDUCATION

September 1979

Prepared For:

STATE BOARD OF DIRECTORS FOR
COMMUNITY COLLEGES OF ARIZONA

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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INTRODUCTION

For some time, leaders in Fire Science Education in Arizona have advocated the need to develop a common-core curriculum that would be recognized statewide by fire service agencies and the institutions of higher learning.

To meet this need the Associate Director for Educational Services of the State Board of Directors for Community Colleges of Arizona prepared a request for a grant proposal. Recognizing the value of this project, the Presidents' Council recommended and the State Board of Directors for Community Colleges approved this action. The grant proposal was successful and a grant was awarded by the Research Coordinating Unit of the Arizona Department of Education for "A Revised Curriculum for Fire Science Education." The project starting date was January 2, 1979.

The project objectives include:

1. To result in a competency-based, common-core curriculum that will be recognized by public and private fire service agencies in Arizona, by Arizona community colleges, by Arizona universities, and by the National Fire Prevention Association.
2. To develop an inventory of competencies and skills for the Fire Science common-core curricula offered at community colleges of Arizona that will satisfy the needs of Fire Science students.
3. The competency-based, common-core curricula will be developed from recommendations, and evaluations made by an Advisory Council composed of experts in Fire Science Education.

4. To correlate the competencies identified with the current requirements for national certification as Fire Fighter I or Fire Fighter II.

5. To determine the degree of supervisory assistance needed to satisfactorily perform those competencies identified as skill competencies.

To this end, a common-core of eight courses were identified:

Group I

Fire Operations I

Fire Operations II

Introduction to Fire Suppression

Fire Hydraulics

Group II

Introduction to Fire Protection

Introduction to Fire Prevention

Fire Apparatus

Fire Fighting Tactics and Strategy

Since rural fire fighters are, for the most part, volunteers who rarely enroll in a degree program, Group I courses are considered the common-core that would best suit their needs.

Urban fire fighters are, for the most part, fully-paid firemen who frequently enroll in a degree program. Group I and Group II are considered the common-core curriculum that would best suit the needs of degree-seeking fire fighters (urban or rural).

Each of the courses identified in the core curriculum was evaluated to determine the minimum competencies that are "universal" to the nature of the course and which are also tailored to the specific needs of fire science students in Arizona. The inventory of minimal

competencies identified for each course should not be construed as representing the only knowledge and skills to be learned. Obviously, there are many competencies for each course that are not included here. These competencies were not identified as "universal," or absolutely essential, and will vary according to an instructors' preferences, student needs, and/or geographic location of the community college.

Each of the common-core courses is divided into modules of instruction. The modules, in turn, contain the minimum competencies that the student should master before continuing on to the next module in sequence.

For the most part, each competency is stated only once, where the concept or skill would be logically found, e.g., the explanation of the tetrahedron of fire would most likely be presented in the course "Fire Operations I." However, it is also realized that students do not necessarily enroll in courses in sequence. Therefore, it is strongly suggested that the instructor design a pretest for each course, the results of which will show the amount of review of fundamental concepts and skills that may be necessary.

The subject matter content is not the same for all courses and the number of semester credit hours may vary, i.e., "Fire Operations I and II" are given four semester hours credit in some community college districts as opposed to three semester hours credit for courses such as "Fire Apparatus" or "Fire Hydraulics." The Fire Science Education Advisory Council also recommends a review of the semester credit hours assigned to Fire Science courses by each community college district.

The Fire Science Education Advisory Council strongly recommends the establishment of statewide standards for Fire Science Education that correlate with national standards. While these standards will not, in themselves, ensure that all students will achieve the required levels of competency, they will ensure that a student has mastered at least the minimal competencies in each of the common-core subject areas he/she successfully completes.

The achievement of the objectives outlined in this project would not have been possible without the many hours of dedicated committee time expended by the Fire Science Advisory Council. The project staff expresses a sincere gratitude for their splendid cooperation, valuable suggestions, and final validation.

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The project staff would also like to thank Joseph Baird of the Arizona Department of Education who did a superb job as liaison among the Arizona Department of Education, the Advisory Council, and the project staff.

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HOW TO USE THIS INVENTORY OF COMPETENCIES

(A) Fire Operations I

IFSTA Reference (C)	(B) Competency	FF I (D)	FF II
200 (161, 164, 165, 175-179)	4. Fire Streams - After completing this module, the student will be able to:	3-8 (E)	4-8
	4.1 Define a fire stream.	K-1 S-1 (F)	K-2 S-2
	4.2 Manipulate a nozzle to attack at least two live fires including: (B)		
	4.2.1 Class A fire		
	4.2.2 Class B fire		
	4.3 Demonstrate how to properly open and close a nozzle.		
	4.4 Identify the dangers associated with the application of a fire stream on a Class C electrical fire.		

(A) This booklet is divided into eight common-core courses for Fire Science Education:

1. Introduction to Fire Protection
2. Introduction to Fire Prevention
3. Introduction to Fire Suppression
4. Fire Operations I
5. Fire Operations II
6. Fire Hydraulics
7. Fire Apparatus
8. Fire Fighting Tactics and Strategy

These courses and competencies were identified as common-core by a statewide Fire Science Education Advisory Council composed of experts in the field of Fire Science Education in Arizona including Fire Science faculty and Occupational Deans from rural and urban community colleges as well as representatives from the State's universities, Fire Chiefs, and the State Fire Marshal's Office.

(B) Each common-core course lists the minimal competencies that are basic to the scope of the course. The competencies are designated by an Arabic numeral(s), underlined, and in bold headings. Each competency is followed by the expression, "After completing this module, the student will be able to:" (stated in behavioral terms). Each minimal competency is divided into its important categories which, in turn, may be further sub-divided into the components of that category. The minimal competency, along with its major categories and components, comprise a module.

(C) To the left of each minimal competency a column titled "IFSTA Reference" is displayed. The International Fire Service Training Association (IFSTA) Reference indicates the number of the manual and (in parenthesis) where further information concerning this competency may be found. In the sample shown, information regarding "Fire Streams" is found on pages 161, 164, 165, 175-179 in the IFSTA 200 manual, Essentials of Fire Fighting.

Fire Fighter Levels:

The IFSTA Manuals used for reference purposes are not meant to take the place of textbooks. Fire Science faculty may use the IFSTA Manuals as textbooks if they so desire, or they may wish to use them for reference only. In whatever manner they are used, it is at the option of the instructor.

(D) To the right of each minimal competency two columns, titled "FF I" and "FF II," are displayed. FF I and FF II are abbreviations for Fire Fighter I and Fire Fighter II, respectively. A fire fighter qualifying for national certification is required to have certain knowledge and skills. Under the headings FF I and FF II a reference number, in italics, is frequently listed. The reference numbers indicate

the national certification standard that is relevant to the competency. In addition, the knowledge and skill levels needed to satisfy this standard is also listed.

(E) The reference numbers for the national certification standards for Fire Fighter I and Fire Fighter II are noted in the National Fire Protection Association publication, "Fire Fighter Professional Qualifications 1974," NFPA 1001.

It is important at this point to clarify the intent of this booklet. The minimum competencies shown here should not be construed as providing the maximum knowledge to be gained in each course nor do the minimal competencies provide all of the knowledge and skills needed for national certification. The minimum competencies do establish a standard on a statewide basis for including the essential concepts and skills when teaching the core-curriculum in Fire Science. At the same time, the minimum competencies also reflect those requirements for national certification that are satisfied by successful completion.

(F) The level of achievement required for national certification in the FF I and FF II categories is designated by the symbols K-1, K-2, S-1, and S-2 for each major objective. The letter "K" refers to concepts, or knowledge objectives, that must be mastered. The letter "S" refers to skills that must be mastered. The number "1" or "2" following each letter symbol indicates the level of mastery necessary.

Generally, each "K" level requirement is designed to be compatible with the following guidelines:

K-0 Not required knowledge for national certification of FF I or FF II.

K-1 Can identify <u>fundamental</u> theories, facts, concepts, principles, requirements, procedures, equipment, and components, and can utilize this knowledge effectively.

K-2 Can identify and interpret <u>advanced</u> theories, facts, etc. and can utilize this knowledge effectively in making sound value judgements and affecting changes in behavior.

Progressively more difficult skill levels are designated by S-1 and S-2. All skill or "S" level objectives begin with the assumption that the student is being asked to demonstrate something. To "demonstrate" is to accomplish by actual use or performance, safely and efficiently and in accordance with established procedures, to the level specified. Skill levels are assigned according to the following general guidelines, and particular listed competencies should be evaluated accordingly:

S-0 Not a required skill for national certification of FF I and FF II.

S-1 Can demonstrate <u>most</u> assigned tasks safely and accurately in accordance with established procedures.

S-2 Can demonstrate <u>all</u> required tasks safely and accurately in accordance with established procedures while functioning independently.

Time considerations are to be considered secondary to the student's ability to perform each task safely and efficiently. Where a time factor is mentioned for a skill, the time factor listed is considered to be the optimum time.

This booklet is not intended as a comprehensive list of every knowledge and skill objective required of fire fighters at all levels. Individual community college instructors should be prepared to add other competencies for each course utilizing the same format.

IFSTA Reference Manuals

The following is a list of publications used as IFSTA References for the competencies found in this booklet. The publications of the International Fire Service Training Association are compatible with the National Fire Protection Association's Standard 1001, "Fire Fighter Professional Qualification (1974)," and the International Association of Fire Fighters/International Association of Fire Chiefs "National Apprenticeship and Training Standards for the Fire Fighter." The standards are an effort to attain professional status through progressive training. The NFPA and IAFF/IAFC Standards were prepared in cooperation with the Joint Council of National Fire Service Organizations of which IFSTA is a member.

IFSTA Manual	Title	Edition
101	Forcible Entry, Rope, and Portable Extinguisher Practices	5th
102	Fire Service Ground Ladder Practices	6th
103	Fire Hose Practices	5th
104	Salvage and Overhaul Practices	5th
105	Fire Stream Practices	5th
106	Fire Apparatus Practices	5th
107	Fire Ventilation Practices	5th
108	Fire Service Rescue and Protective Breathing Practices	4th
110	Fire Prevention and Inspection Practices	4th
200	Essentials of Fire Fighting	1st
201	Fire Service Practices for Volunteer Fire Departments	5th
202	Fire Service Orientation and Indoctrination	1st
203	Fire Service Training Programs	2nd
205	Water Supplies for Fire Protection	2nd
206	Aircraft Fire Protection and Rescue Procedures	1st

IFSTA Manual	Title	Edition
207	Ground Cover Fire Fighting Practices	1st
208	Records and Reports for the Fire Service	1st
302	Fire Department Facilities, Planning, and Procedures	2nd
304	Fire Problems in High-Rise Buildings	1st
402	Fundamental Principles of Science	3rd

The IFSTA Manuals listed above may be ordered from:

International Fire Service Training Association
Fire Protection Publications
Oklahoma State University
Stillwater, Oklahoma 74074

The IFSTA Manuals may be ordered locally from:

Secretary
Arizona Fire Chiefs Association
298 Fourth Street
Yuma, Arizona 85362

NOTE: The IFSTA Manuals listed above are those used as reference for competencies in the common-core curriculum. IFSTA Manuals are frequently revised and new editions are published periodically. Therefore, the references for competencies should be monitored and kept as up-to-date as possible.

FIRE OPERATIONS I

INVENTORY OF MINIMUM COMPETENCIES AND SKILLS

SEPTEMBER 1979

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15. Communications 13
16. Sprinklers 14

Fire Operations I

The following competencies are based upon the minimal concepts that are basic to the scope of this course. In no manner should these competencies be construed as providing the maximum knowledge to be gained by the student in completing this course.

IFSTA Reference	Competency	FF I	FF II
	1. General - After completing this module, the student will be able to:		
	1.1 Identify and describe fire department rules and regulations that apply to the position of fire fighter.	K-1 S-0	K-2 S-0
	2. Fire Behavior - After completing this module, the student will be able to:		
107 (11-15) 200 (3-11)	2.1 Define and describe each of the following terms to include:	K-1 S-0	K-2 S-0
	2.1.1 Chemistry of fire to include:		
	2.1.1.1 The fire triangle		
	2.1.1.2 Tetrahedron of fire		
	2.1.2 Stages and phases of burning		
	2.1.3 Flame spread		
	2.1.4 Flash-over		
	2.1.5 Classes of fire		
	2.1.6 Methods of heat transfer		
	2.1.7 Four products of combustion		
105 (9-19) 107 (17-21) (39-41)	2.2 Define and describe each of the following terms associated with flammable liquids to include:	K-1 S-0	K-2 S-0
	2.2.1 Flash point		

IFSTA Reference	Competency	FF I	FF II
	2.2.2 Burning point		
	2.2.3 Ignition temperature		
	2.2.4 Vapor density		
	2.2.5 Explosive limits		
	2.2.6 Classification		
	2.2.7 Boiling point		
	2.2.8 Specific gravity		
	2.2.9 Law of heat flow		
	2.2.10 Latent heat of vaporization		
	2.2.11 Incompressibility of water		
105 (22-23)	2.3 Demonstrate the correct use of all safety equipment in fighting electrical fires.	K-1 S-1	K-2 S-2
101 (135-136) 201 (43-44) (51-55)	2.4 Identify five agents that inhibit the chain reaction and inhibit fire.	K-1 S-0	K-2 S-0
	3. <u>Classification of Fire Extinguishers</u> - After completing this module, the student will be able to:		
200 (13-22) 101 (151-168) 201 (43-55)	3.1 Identify the classification of types of fires related to the use of portable fire extinguishers.	K-1 S-0	K-2 S-0
	3.2 Demonstrate the appropriate fire extinguishers used for the various classes of fire.	K-1 S-1	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
	3.3 Describe the portable extinguisher rating system.	K-0 S-0	K-1 S-0
200 (18-20) 201 (51-55) 206 (133-140)	3.4 Describe the use, limitations, applications, applicability, and compatibility of various extinguishing agents to include:	K-1 S-0	K-2 S-0
	3.4.1 Water		
	3.4.2 Foams		
	3.4.3 Carbon dioxide		
	3.4.4 Halons		
	3.4.5 Dry chemical and dry powder		
	3.4.6 Wetting agents		
	3.5 Describe the availability and responsibility for determining the use of all local extinguishers to include:	K-1 S-0	K-2 S-0
	3.5.1 How each is applied		
	3.5.2 How each extinguishes fires		
	4. <u>Fire Streams</u> - After completing this module, the student will be able to:		
105 (4,46-52)	4.1 Define a fire stream	K-1 S-0	K-1 S-0
200 (161,175-179)	4.2 Manipulate a nozzle to attack at least two live fires including:	K-1 S-1	K-2 S-2
	4.2.1 Class A fire		
	4.2.2 Class B fire		
	4.3 Demonstrate how to properly open and close a nozzle.	K-1 S-1	K-2 S-1

IFSTA Reference	Competency	FF I	FF II
105 (22-23)	4.4 Identify the dangers associated with the application of a fire stream on a class C electrical fire.	K-1 S-0	K-2 S-0
105 (161-168)	4.5 Identify all nozzles in possession of the local authority and describe each with regard to: 4.5.1 Purposes and functions 4.5.2 Care and maintenance 4.5.3 Damage created by rough handling	K-1 S-0	K-2 S-0
	5. Hose - After completing this module, the student will be able to:		
103 (3-12) 200 (99-100) 201 (75)	5.1 Identify and describe the hoses on a fire department pumper to include: 5.1.1 Sizes 5.1.2 Types 5.1.3 Amounts 5.1.4 Use	K-1 S-0	K-1 S-0
103 (25-44)	5.2 Identify and describe the use of hose adapters and hose appliances found on a fire department pumper.	K-1 S-1	K-2 S-1
103 (35-44)	5.3 Perform the following operations by attaching the following appliances and nozzles (one end only) in the time allotted: 5.3.1 To a 1 1/2 inch line, or larger, an adjustable stream nozzle within 40 seconds	K-1 S-1	K-2 S-1

IFSTA Reference		Competency	FF I	FF II
		5.3.2 To a 1 1/2 inch line, or larger, a distributor nozzle within 40 seconds		
		5.3.3 A "wye" within 45 seconds		
		5.3.4 A "siamese" within 55 seconds		
		5.3.5 A "double female" connection within 40 seconds		
		5.3.6 A "reducer" within 40 seconds		
103 (97-138) 200 (124-131) (156-158)	5.4	Demonstrate, as an individual or as a team member, advancing charged attack lines of two different sizes that are 1 1/2 inches, or larger, from a pumper:	K-1 S-1	K-2 S-2
		5.4.1 Into a structure		
		5.4.2 Up a ladder into an upper floor		
		5.4.3 Up an inside stairway to an upper floor		
		5.4.4 Up an outside stairway to an upper floor		
		5.4.5 Down an inside stairway to a lower floor		
		5.4.6 Down an outside stairway to a lower floor		
		5.4.7 To an upper floor by hoisting		
103 (61-62) 200 (341) 302 (28)	5.5	Demonstrate connecting a fire hose to a hydrant and its operation by fully opening and closing the hydrant.	K-1 S-1	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
103 (97-134)	5.6 Demonstrate the loading of a fire hose on an apparatus and identify three types of hose loads and finishes.	K-1 S-1	K-2 S-2
103 (97-134)	5.7 Demonstrate at least three different hose loads.	K-1 S-1	K-2 S-2
103 (75-86)	5.8 Demonstrate at least two different hose carries.	K-1 S-1	K-2 S-2
200 (124-131)	5.9 Demonstrate at least two different hose drags.	K-1 S-1	K-2 S-2
103 (56-60)	5.10 Demonstrate at least two methods of coupling and uncoupling fire hose.	K-1 S-1	K-2 S-2
103 (88-89) 200 (148-149)	5.11 Demonstrate the methods for extending a hose line and replacing a burst section.	K-1 S-1	K-2 S-2
	6. <u>Ladders</u> - After completing this module, the student will be able to:		
102 (3-18) 200 (37-40)	6.1 Identify all ladders and describe the uses of each.	K-1 S-0	K-2 S-0
102 (41-48) 200 (50-54)	6.2 Demonstrate, as an individual or as a team member, ladder carries to include: 6.2.1 One person carry 6.2.2 Two person carry	K-2 S-2	K-2 S-2
102 (48-90) 200 (52-58)	6.3 Demonstrate, as an individual or as a team member, raising various ground ladders to include:	K-2 S-2	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
	6.3.1 Several different raises for each ladder		
102 (25-32)	6.4 Demonstrate climbing the full length of various ground and aerial ladders.	K-1 S-1	K-2 S-2
200 (47-48)	6.5 Demonstrate climbing the full length of various ground and aerial ladders while carrying fire fighting tools.	K-1 S-1	K-2 S-2
200 (48)	6.6 Demonstrate climbing the full length of various ground and aerial ladders and bring an "injured" person down each ladder.	K-1 S-1	K-2 S-2
102 (25-32) 200 (47-48)	6.7 Demonstrate methods of working from ground or aerial ladders carrying tools and appliances with and without a life belt.	K-1 S-1	K-2 S-2
102 (33-37) 200 (41-42)	6.8 Demonstrate the proper methods of cleaning ladders.	K-1 S-1	K-2 S-2
	7. <u>Protective Breathing Apparatus</u> - After completing this module, the student will be able to:		
108 (9-16) 200 (260)	7.1 Describe protective breathing apparatus to include:	K-1 S-0	K-2 S-0
	7.1.1 Physical requirements of the wearer		
	7.1.2 Limitations		
	7.1.3 Safety features		
201 (190-194)	7.2 Demonstrate donning a breating apparatus while wearing protective clothing.	K-2 S-2	K-2 S-2

IFSTA Reference		Competency	FF I	FF II
108 (30-42) 200 (251-261) 201 (190-194)	7.3	Demonstrate, in a dense smoke environment, the use of all types of protective breathing apparatus.	K-2 S-2	K-2 S-2
108 (46-48) 200 (258-261)	7.4	Demonstrate that the protective breathing apparatus is in a safe condition for immediate use.	K-1 S-1	K-2 S-2
	7.5	Demonstrate the proper procedure for cleaning and sanitizing a protective breathing apparatus for future use.	K-1 S-1	K-2 S-2
108 (30-42) 200 (251-261) 201 (190-194)	7.6	Demonstrate donning a protective breathing apparatus while in full fire fighting apparel including helmet and gloves within 45 seconds.	K-2 S-2	K-2 S-2
	7.7	Demonstrate, as a member of a two-man team, traversing an obstacle course consisting of five sections of 2 1/2 inch hose stretched throughout a building unfamiliar to the student while wearing full fire fighting apparel including protective breathing equipment with a hooded or masked face piece.	K-2 S-2	K-2 S-2
	7.8	Demonstrate, while operating alone, negotiating a "disorientation course" consisting of four sections of 2 1/2 inch hose stretched out and crisscrossed while wearing protective	K-2 S-2	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
	breathing equipment with a hooded or masked face piece. (The student will be disorientated and led to the hose. Using knowledge of hose couplings as a guideline, the student will make a safe exit to the outside of the building.)		
	8. Fire Extinguishment - After completing this module, the student will be able to:		
105 (4,20) 107 (106-110)	8.1 Identify three types of fire streams and define their fire extinguishment values.	K-1 S-0	K-2 S-0
200 (161,164, 165)	8.2 Define the extinguishment characteristics value to include:	K-1 S-0	K-2 S-0
	8.2.1 Heat absorption capacity		
	8.2.2 Stream conversion		
	8.3 Identify and describe four methods of extinguishing a fire.	K-1 S-0	K-2 S-0
105 (9-10) 107 (38-107)	8.4 Identify and define:	K-1	K-2
	8.4.1 The properties of water to include:	S-0	S-0
	8.4.1.1 Weight per gallon		
	8.4.1.2 Gallons per cubic foot		
	8.4.1.3 Cubic inches per gallon		
	9. Water Distribution System Maintenance and Valves - After completing this module, the student will be able to:		

IFSTA Reference	Competency	FF I	FF II
200 (341) 205 (47-56) 302 (28)	9.1 Describe and identify fire hydrants to include: 9.1.1 Hydrant capacity by color coding system 9.1.2 Precautions to be taken against freezing 9.1.3 Size of outlets and maintenance procedures	K-1 S-0	K-2 S-0
205 (48-51)	9.2 Demonstrate the operation of a fire hydrant to include: 9.2.1 Opening and closing 9.2.2 Cleaning of threads and caps 9.2.3 Inspection for obstruction or damaged conditition 9.2.4 Drainage	K-1 S-1	K-2 S-1
	10. <u>Tools and equipment</u> - After completing this module the student will be able to:		
101 (10-14) 200 (187-189)	10.1 List the tools carried on a fire apparatus.	K-1 S-0	K-1 S-0
206 (68-72)	10.2 Identify all tools located on a fire apparatus or in a storage location and deliver a tool to a new location that is 30 feet from its mounting within 35 seconds. Tools should be carried in the prescribed manner.	K-1 S-1	K-2 S-1

IFSTA Reference	Competency	FF I	FF II
	10.3 Describe the appropriate preventive maintenance for tools according to local policy or manufacturer's technical data.	K-1 S-0	K-2 S-0
	11. Forcible Entry - After completing this module, the student will be able to:		
101 (10-77) 200 (187-207)	11.1 Identify and demonstrate the use of each type of forcible entry tool.	K-1 S-1	K-2 S-2
	11.2 Demonstrate the method and procedure for properly cleaning, maintaining, and inspecting each type of forcible entry tool and equipment.	K-1 S-1	K-2 S-2
	12. Rescue - After completing this module, the student will be able to:		
108 (77-89) (93-110) 200 (209-233)	12.1 Demonstrate the removal of injured persons from an immediate hazard using: 12.1.1 Carries 12.1.2 Drags 12.1.3 Stretchers 12.1.4 Hydraulic jack	K-1 S-1	K-2 S-2
206 (11) 108 (87-90) 200 (215,216)	12.2 Demonstrate the methods used for searching for victims in burning, smokefilled buildings or other hostile environments.	K-1 S-1	K-2 S-2
	12.3 Demonstrate and explain the uses of a life belt.	K-1 S-1	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
	12.4 Demonstrate the procedures for action when trapped or disoriented in a fire situation or other hostile environment.	K-2 S-2	K-2 S-2
	13. Ventilation - After completing this module, the student will be able to:		
107 (3-7) 200 (235-239)	13.1 Define the principles of ventilation.	K-1 S-0	K-2 S-0
	13.2 Describe the advantages and effects of ventilation.	K-1 S-0	K-2 S-0
107 (45-62)	13.3 Describe the dangers present and the precautions to be taken in performing ventilation.	K-1 S-0	K-2 S-0
107 (67-106) 200 (239-248)	13.4 Demonstrate opening various types of windows from the inside and outside; with and without the use of fire department tools.	K-1 S-1	K-2 S-2
	13.5 Demonstrate breaking a window, or doorglass, and removing obstructions without harm to the fire fighter or others.	K-1 S-1	K-2 S-2
	13.6 Demonstrate, with a fire axe and ladder (including a roof ladder), the ventilation of a roof.	K-1 S-1	K-2 S-2
	13.7 Identify and explain the theory of a "back draft explosion."	K-1 S-0	K-2 S-0
	14. Salvage and Overhaul - After completing this module, the student will be able to:		

IFSTA Reference	Competency	FF I	FF II
104 (9-12) 200 (263-265) 201 (103-105)	14.1 Identify and describe the purposes of salvage and its value to the public and the fire department.	K-1 S-0	K-2 S-0
104 (13-19)	14.2 Demonstrate methods of inspection, cleaning, and maintaining salvage equipment.	K-1 S-1	K-2 S-2
	15. Communications - After completing this module, the student will be able to: (applicable to local jurisdiction)		
200 (323-332) 206 (113-121)	15.1 Describe the correct procedure for a citizen to report a fire or other emergency.	K-1 S-0	K-2 S-0
208 (all)	15.2 Describe station watch duties.	K-1 S-0	K-2 S-0
302 (82-85)	15.3 Demonstrate any traffic control devices installed in the fire station to facilitate the response of fire apparatus.	K-1 S-1	K-2 S-1
304 (77-80)	15.4 Describe the procedures required for the receipt and processing of business and personal calls.	K-1 S-0	K-2 S-2
	15.5 Describe the proper fire department radio procedures and use of portable and mobile radio equipment.	K-1 S-0	K-2 S-0
	15.6 Define the policy and describe the procedures concerning the ordering and transmitting of multiple alarms of fire calls or calls for	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
	special assistance.		
	15.7 Identify and explain all fire alarm signals, including multiple alarms and signals, that govern the movement of fire apparatus as well as the action to be taken upon the receipt of each signal.	K-1 S-1	K-2 S-2
	15.8 Describe the correct procedure for receiving an alarm or report of an emergency and initiate the proper action.	K-1 S-0	K-2 S-0
	15.9 Describe the purpose and function of all alarm receiving instruments and personnel alerting equipment found in a fire station.	K-1 S-0	K-2 S-0
	15.10 Identify supervisory alarm equipment and demonstrate the prescribed action taken upon the receipt of designated signals.	K-1 S-1	K-2 S-2
	16. Sprinklers - After completing this module, the student will be able to:		
200 (345-348)	16.1 Connect hose line(s) to a fire department connection of an automatic sprinkler system.	K-0 S-0	K-1 S-2
104 (19,77)	16.2 Demonstrate, with the appropriate equipment, a temporary stop of the flow of water from a sprinkler head.	K-0 S-0	K-1 S-1
200 (345-351)	16.3 Demonstrate the method by which an automatic sprinkler head opens and releases water.	K-0 S-0	K-1 S-2

IFSTA Reference	Competency	FF I	FF II
200 (345-348)	16.4 Demonstrate the removal of one head from a sprinkler system and replace it with a head from the same type.	K-0 S-0	K-1 S-2

FIRE OPERATIONS II

INVENTORY OF MINIMUM COMPETENCIES AND SKILLS

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2. Hose. 1
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Fire Operations II

The following competencies are based upon the minimal concepts that are basic to the scope of this course. In no manner should these competencies be construed as providing the maximum knowledge to be gained by the student in completing this course.

IFSTA Reference	Competency	FF I	FF II
	1. Rescue - After completing this module, the student will be able to:		
200 (224-227)	1.1 Demonstrate the procedure for lowering a person from a third floor level using the proper rope and knot.	K-1 S-1	K-2 S-2
200 (231-233)	1.2 Demonstrate, as a member of a team, the extrication of a victim from a vehicle accident.	K-1 S-1	K-2 S-2
200 (251-260)	1.3 Demonstrate the use of breathing aid equipment and explain the precautions of care and maintenance of each unit.	K-2 S-2	K-2 S-2
	2. Hose - After completing this module, the student will be able to:		
105 (161-168)	2.1 Identify, select, and demonstrate the use of any nozzle carried on an approved fire department pumper.	K-1 S-1	K-2 S-2
103 (95-96) 200 (131,132)	2.2 Demonstrate all hand hose lays.	K-1 S-1	K-1 S-1
103 (12-24) 200 (99-104) 201 (98-100)	2.3 Demonstrate the proper methods of inspection and maintenance of fire hose, couplings, and nozzles; and recommend replacement or repair as needed to include:	K-1 S-1	K-1 S-1

IFSTA Reference	Competency	FF I	FF II
	2.3.1 The proper method for cleaning hose by selecting the appropriate cleaning agent and placing on the drying rack to dry		
103 (61-62) 200 (149-154)	2.4 Demonstrate all hydrant pumper connections.	K-2 S-2	K-2 S-2
103 (9-12) 200 (99,100)	2.5 Describe the amount and type of hose carried on all apparatus.	K-1 S-1	K-1 S-1
103 (70-74) 200 (109-117)	2.6 Demonstrate attaching one end of a fire hose to appliances, in the time allotted, to include:	K-1 S-1	K-1 S-1
	2.6.1 To a 1 1/2 inch line, an adjustable stream nozzle, within 30 seconds		
	2.6.2 To a 2 1/2 inch line, or larger, an adjustable stream nozzle, within 30 seconds		
	2.6.3 To a 2 1/2 inch line, or larger, a distributor nozzle, within 30 seconds		
	2.6.4 A "wye" within 35 seconds		
	2.6.5 A "siamese" within 45 seconds		
	2.6.6 A "water thief" within 30 seconds		
	2.6.7 A "double male connection," within 35 seconds		

IFSTA Reference	Competency	FF I	FF II
	2.6.8 A "double female connection," within 30 seconds		
	2.6.9 A "reducer," within 30 seconds		
103 (88,89) 200 (148-149)	2.7 Demonstrate the proper procedure for each of the following operations within the time allotted:	K-1 S-1	K-2 S-2
	2.7.1 Replace a burst section of hose by using a hose clamp and donut roll, within two minutes		
	2.7.2 Place a hose clamp in the following manner:		
	2.7.2.1 Using three lengths of change hose, place the clamp on the length nearest the water supply and replace the center section (simulated burst hose section) and remove clamp, within two minutes		
	2.7.2.2 Connect two or more lengths of 2 1/2 inch, or larger, hose into a siamese appliance and one length from the siamese appliance within two minutes		

IFSTA Reference	Competency	FF I	FF II
105 (51)	2.8 Demonstrate the proper procedure for connecting hose to multiversal, aerial, and ladder pipes.	K-0 S-0	K-1 S-1
200 (149-152) 103 (61-66)	2.9 Define and identify the uses of hard and soft suction hose in relation to hydrant connections.	K-2 S-2	K-2 S-2
103 (61-70) 200 (149-154)	2.10 Demonstrate the proper procedure for connecting hose to a fire hydrant with the fire apparatus in position and within the allotted time to include: 2.10.1 Soft sleeve (suction), within 40 seconds 2.10.2 Hard sleeve (suction), within one minute 2.10.3 Remove two 50 foot sections of hose from the apparatus, connect to hydrant and the apparatus to make one 100 foot length, within 90 seconds	K-2 S-2	K-2 S-2
103 (97-150) 200 (124-131) (156-158)	2.11 Demonstrate, as a member of a team, hose operations to include: 2.11.1 Advancing lines 2.11.2 Dragging up stairs 2.11.3 Dragging up ladders 2.11.4 Dry and charged hoses 2.11.5 Passing hose	K-1 S-1	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
	2.11.6 Hoisting		
103 (97-138) 200 (124-131) (156-158)	2.12 Demonstrate; advancing two sizes, dry and charged hose lines, 1 1/2 inch or larger, with attached nozzles; identifying precautions against damage; with the tailboard of the apparatus positioned 50 feet from the structure; a ladder placed at a third floor window or equivalent; and the line to be changed at the ground floor entrance to the building; the following operations in the time allotted to include:	K-1 S-1	K-2 S-2
	2.12.1 A 50 foot hose into a structure:		
	Dry / Charged Sm. line, 35 sec. / 75 sec. Lg. line, 45 sec. / 120 sec.		
	2.12.2 Up a ladder to a third floor window:		
	Dry / Charged Sm. line, 60 sec. / 90 sec. Lg. line, NA / NA		
	2.12.3 Up an inside stairway to the second floor landing:		
	Dry / Charged Sm. line, 90 sec. / 120 sec. Lg. line, 120 sec. / 180 sec.		
	2.12.4 Up an outside stairway to the second floor landing:		

IFSTA Reference	Competency	FF I	FF II
	Dry Charged Sm. line, 90 sec. 120 sec. Lg. line, 120 sec. 180 sec.		
	2.12.5 Down an inside stairway to the first basement landing: Dry Charged Sm. line, 90 sec. 105 sec. Lg. line, 120 sec. 180 sec.		
	2.12.6 To an upper floor by hoisting		
103 (70-71) 200 (154-156)	2.13 Demonstrate standpipe hose operations to include:	K-1 S-1	K-2 S-2
	2.13.1 Advance two 2 1/2 inch hose lines from the apparatus tailboard to an outside standpipe connection 50 feet from the apparatus and connect the hose within 180 seconds		
	2.13.2 From the ground floor, carry 50 feet of 2 1/2 inch hose, using a shoulder carry, to a second floor inside standpipe and connect within 150 seconds		
	2.13.3 From the ground floor, carry a "wye" and 100 feet of 1 1/2 inch hose from the doorway to the second floor inside standpipe and connect within 180 seconds		

IFSTA Reference	Competency	FF I	FF II
103 (44) 200 (116)	2.14 Identify and demonstrate the use of a hose strap, wallhook, and rope in anchoring a fire hose to include the following operations:	K-2 S-2	K-2 S-2
	2.14.1 Anchor or tie-in a 2 1/2 inch fire hose, with nozzle attached, to a standing object at least 8 feet above the ground level using:		
	2.14.1.1 A hose strap within 30 seconds		
	2.14.1.2 A wallhook, within 30 seconds		
	2.14.1.3 A rope hose tool within 30 seconds		
	2.14.1.4 A spanner belt within 30 seconds		
	3. Water Supply - After completing this module, the student will be able to:		
200 (340,341) 205 (47-56)	3.1 Identify and describe all types of fire hydrants in the local jurisdiction to include:	K-1 S-1	K-2 S-1
	3.1.1 Operational components		
	3.1.2 Installation and distribution of maintenance required		
	3.1.3 Records to be maintained		

IFSTA Reference	Competency	FF I	FF II
	4. <u>Fire Streams</u> - After completing this module, the student will be able to:		
105 (4,38-40)	4.1 Identify the phases of burning.	K-1 S-0	K-2 S-0
	4.2 Select the proper nozzle and hose size.	K-1 S-0	K-2 S-0
	4.3 Identify the characteristics of given types of hose streams.	K-1 S-0	K-1 S-0
200 (6-8) (164-165)	4.4 Select and describe the proper adaption or appliance for five fire ground situations.	K-1 S-0	K-2 S-0
103 (97-138) 200 (124-131)	4.5 Describe several precautions to be followed while advancing hose lines to a fire.	K-2 S-0	K-2 S-0
105 (24-36) 200 (163,164)	4.6 Describe the conditions that result in pressure losses in a hose line.	K-0 S-0	K-1 S-0
105 (37-50) 200 (165-172)	4.7 Select four special stream nozzles and demonstrate two uses or applications for each.	K-1 S-1	K-2 S-2
105 (37-50) 200 (165-170)	4.8 Describe three observable results obtained when the proper application of a fire stream has been accomplished.	K-1 S-0	K-2 S-0
105 (37-50)	4.9 Identify, select, and assemble those items required to develop at least three types of fire streams.	K-1 S-1	K-2 S-1

IFSTA Reference	Competency	FF I	FF II
	5. <u>Ventilation</u> - After completing this module, the student will be able to:		
107 (87-106) 200 (235-248)	5.1 Demonstrate the use of different types of equipment needed for forced ventilation.	K-0 S-0	K-2 S-2
107 (106-112) 200 (246-247)	5.2 Demonstrate ventilation using water fog.	K-0 S-0	K-2 S-2
107 (113-115) (58-60) 200 (246-248)	5.3 Demonstrate the use of different types of power saws and jack hammers.	K-0 S-0	K-2 S-2
107 (48-53) (81-111) 200 (239-244)	5.4 Identify the different types of roofs to include: 5.4.1 The methods used to ventilate each type 5.4.2 Describe the necessary precautions to be taken	K-0 S-0	K-1 S-1
	5.5 Demonstrate how to: 5.5.1 Determine the size of an opening 5.5.2 Locate the openings	K-0 S-0	K-1 S-1
107 (54-63) 200 (243,244)	5.6 Demonstrate the method or removal of sky-lights, scuttle covers, and other covers on roof tops.	K-0 S-0	K-1 S-1
	5.7 Describe the methods used for floor ventilation.	K-1 S-1	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
	6. <u>Protective Breathing Apparatus</u> - After completing this module, the student will be able to:		
108 (46-48) 200 (251-261) 201 (190-194)	6.1 Demonstrate the correct procedure for daily inspection and maintenance of the breathing apparatus.	K-1 S-1	K-2 S-2
200 (251-261) 201 (190-194)	6.2 Demonstrate the procedure used for recharging the breathing apparatus.	K-1 S-1	K-2 S-2
200 (251-261) 201 (190-194)	6.3 Demonstrate the correct use of the breathing apparatus in emergency procedures to include: 6.3.1 Assistance of other fire fighters. 6.3.2 Conservation of air 6.3.3 Restrictive use of by-pass valves	K-1 S-1	K-2 S-2
200 (251-261) 201 (190-194)	6.4 Change the air cylinder on a wearer to simulate emergency conditions, within 40 seconds.	K-2 S-2	K-2 S-2

INTRODUCTION TO FIRE SUPPRESSION

INVENTORY OF MINIMUM COMPETENCIES AND SKILLS

SEPTEMBER 1979

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Introduction to Fire Suppression

The following competencies are based upon the minimal concepts that are basic to the scope of this course. In no manner should these competencies be construed as providing the maximum knowledge to be gained by the student in completing this course.

IFSTA Reference	Competency	FF I	FF II
	1. The Fire - After completing this module, the student will be able to:	*3-16*	*4-18*
107 (11-15) 200 (3-11) 302 (102-103)	1.1 Identify and define the following terms that relate to the chemistry of fire to include:	K-1 S-0	K-2 S-0
	1.1.1 Tetrahedron of fire		
	1.1.2 Stages and phases of burning		
	1.1.3 Flame spread		
	1.1.4 Flashover		
	1.1.5 Classes of fire		
	1.1.6 Methods of heat transfer		
	1.1.7 Products of combustion		
	1.1.8 Back draft		
105 (9-19) 107 (17-21) (39-41)	1.2 Identify and define the following terms associated with flammable liquids to include:	K-1 S-0	K-2 S-0
	1.2.1 Flash point		
	1.2.2 Ignition temperature		
	1.2.3 Vapor density		
	1.2.4 Explosive limit		
	1.2.5 Classification of flammable liquids		
	1.2.6 Boiling point		

IFSTA Reference	Competency	FF I	FF II
	1.2.7 Specific gravity		
	2. Types of Buildings - After completing this module, the student will be able to:	*3-15*	*4-2*
N.F.P.A. Life Safety 101	2.1 Identify buildings according to "Type" of classification as specified in the Uniform Building Code to include:		
	2.1.1 Type I Buildings		
	2.1.2 Type II Buildings		
	2.1.3 Type III Buildings		
	2.1.4 Type IV Buildings		
	2.1.5 Type V Buildings		
200 (185-186) 302 (20-33)	2.2 Describe, from the aspect of protection and safety of the fire fighter in fire suppression, the fundamental structure elements in buildings to include:	K-1 S-0	K-0 S-0
	2.2.1 Type I Buildings		
	2.2.1.1 Walls and permanent partitions		
	2.2.2 Type II Buildings		
	2.2.2.1 Walls and permanent partitions		
	2.2.2.2 Structural framework		
	2.2.3 Type III Buildings		
	2.2.3.1 Structural framework		
	2.2.3.2 Exterior walls		

IFSTA Reference	Competency	FF I	FF II
	2.3 Describe the basic fire resistance requirements as they relate to the protection and safety of the fire fighter during fire suppression to include:	K-1 S-0	K-0 S-0
	2.3.1 Exterior building walls - Type I and II buildings		
	2.3.2 Shaft enclosures - Type II buildings		
	2.3.3 Permanent partitions - Type IV buildings		
	2.3.4 Structural framework - Type V buildings		
	3. Building Occupancies - After completing this module, the student will be able to:	*3-12* *3-15*	*4-14*
302 (54-56) (87-99)	3.1 Identify, define, and describe the following building occupancies as they relate to the action analysis considerations in effecting protection and safety to occupants and fire fighters during fire suppression to include:	K-1 S-0	K-2 S-0
	3.1.1 Assembly buildings		
	3.1.1.1 Place of assembly		
	3.1.1.2 Three classes of assembly		
	3.1.1.3 Occupancy load permitted		
	3.1.1.4 Means of egress		
	3.1.2 Educational		

IFSTA Reference	Competency	FF I	FF II
	3.1.2.1 Educational occupancy		
	3.1.2.2 Panic hardware for exit doors		
	3.1.3 Institutional		
	3.1.3.1 Institutional occupancy		
	3.1.3.2 Three classes of occupancy		
	3.1.4 Residential		
	3.1.4.1 Residential occupancy		
	3.1.4.2 Travel distance to an exit		
	3.1.5 Mercantile		
	3.1.5.1 Mercantile occupancy		
	3.1.5.2 Five classes of occupancy		
	3.1.5.3 Automatic sprinkler systems		
	3.1.6 Business		
	3.1.6.1 Business occupancy		
	3.1.7 Industrial		
	3.1.7.1 Six classes of occupancy		
	4. Action Analysis - After completing this module, the student will be able to:	*3-6* *3-10* *3-12*	*4-6* *4-10* *4-12* *4-17*
200 (209-217) (224-227) (231-248) (251-260)	4.1 Identify and describe the basic divisions of size-up procedures to include:	K-1 S-0	K-2 S-0
	4.1.1 Rescue		

IFSTA Reference	Competency	FF I	FF II
(263-287) 206 (77-88) 302 (87-98)	4.1.2 Exposure 4.1.3 Confinement 4.1.4 Extinguishment 4.1.5 Overhaul 4.1.6 Ventilation 4.1.7 Salvage		
	4.2 Identify and describe each division in a size-up procedure: 4.2.1 Facts 4.2.2 Probabilities 4.2.3 Fire fighter's current situation 4.2.4 Decision making 4.2.5 Plan of operation	K-1 S-0	K-2 S-0
200 (131-132) 302 (94)	4.3 Describe the importance of proper phase line placement and its effect on size-up procedures.	K-1 S-0	K-2 S-0
200 (235-237) 302 (96)	4.4 Describe the importance of proper ventilation.	K-1 S-0	K-2 S-0
	4.5 Describe the importance of attacking a fire from the "unburned position" and its relationship to size-up procedures.		
	5. <u>Fire Suppression Organization</u> - After completing this module, the student will be able to:	*3-1*	*4-1*
206 (77-88) 302 (17)	5.1 Describe the chain of command in fire suppression and its function in a local fire	K-2 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
	jurisdiction.		
	5.2 Describe the duties of an engine company at a structural fire.		
	5.3 Describe the importance of supportive duties necessary at a structural fire, e.g., duties of the ladder and truck company.		
	5.4 Describe the duties when a ladder and truck apparatus is not available.		
	6. Fire Suppression Apparatus and Equipment - After completing this module, the student will be able to:	*3-2* *3-7*	*4-7*
106 (9-10) 302 (17-20)	6.1 Describe the functions of a fire pumper to include:	K-1 S-0	K-2 S-0
	6.1.1 Gallons per minute delivery		
	6.1.2 Volume (in gallons) of tank water carried		
	6.1.3 Types of hose carried		
	6.1.4 Type of pump used		
106 (12-13)	6.2 Describe the functions of a fire tanker.	K-1 S-0	K-2 S-0
106 (10-11)	6.3 Describe the functions of an aerial apparatus to include:	K-1 S-0	K-2 S-0
	6.3.1 A large municipal fire department		
	6.3.2 A small municipal volunteer fire department		
	6.3.3 A rural volunteer fire department		

IFSTA Reference	Competency	FF I	FF II
106 (11-12) (13-18)	6.4 Describe the functions of specialized apparatus to include: 6.4.1 Quick attack vehicle 6.4.2 Brush truck 6.4.3 Utility vehicle 6.4.4 Command car 6.4.5 Other vehicles	K-1 S-0	K-2 S-0
101 (10-14) 200 (187-189)	6.5 Demonstrate the proper location of all tools and equipment found on a fire pumper truck.	K-1 S-0	K-1 S-0
	7. Basic Hose Lay Practices - After completing this module, the student will be able to:	3-7 197	4-7 197
200 (131-132)	7.1 Demonstrate, as a member of a two-man team, the proper methods for laying and operating a brush, or redline, hose at a grass fire.	K-1 S-1	K-2 S-2
103 (97-138) 200 (124-131) (156-158)	7.2 Demonstrate, as a member of a team, the proper method for laying and operating a 1 1/2" quick attack hose at a fire.	K-1 S-1	K-2 S-2
103 (97-138) 200 (124-131) (156-158)	7.3 Demonstrate, as a member of a team, the proper method for laying a 2 1/2" attack hose from a pumper.	K-1 S-1	K-2 S-2
103 (97-138) 200 (124-131) (156-158)	7.4 Identify and describe the function of a supply line and demonstrate, as a member of a team, the proper method for providing two 1 1/2" and one 2 1/2" attack line simultaneously to a structural fire.	K-1 S-1	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
	8. Basic Fire Stream Practices - After completing this module, the student will be able to:	*3-8*	*4-8*
105 (27-31) 200 (163-164) 302 (94)	8.1 Identify and describe the function of fire streams to include:	K-1 S-0	K-2 S-0
	8.1.1 Friction loss		
	8.1.2 Back pressure		
	8.1.3 Engine pressure		
105 (37-50 200 (165-172)	8.2 Identify four special stream nozzles.	K-1 S-0	K-2 S-0
	8.2.1 Demonstrate two uses or applications for each nozzle		
105 (37-50) 200 (165-170)	8.3 Describe the results of proper fire streams application.	K-1 S-0	K-2 S-0
200 (335-341)	8.4 Define and describe the four fundamental components of a modern water distribution system to include:	K-1 S-0	K-2 S-0
	8.4.1 Source		
	8.4.2 Pumping system		
	8.4.3 Water main (distribution system)		
	8.4.4 Hydrant system		
105 (31-36) 200 (163-164)	8.5 Describe two sources of friction loss when water flows through a water main.	K-1 S-0	K-1 S-0
105 (27-29)	8.6 Describe the relationship between engine pressure and nozzle pressure.	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
105 (38-53) 200 (165-175) 302 (100)	8.7 Describe the function and identify the advantages of various types of nozzles and fittings to include:	K-1 S-1	K-2 S-2
	8.7.1 1 1/2" fog stream nozzle		
	8.7.2 2 1/2" straight stream nozzle		
	8.7.3 2 1/2" male adaptor		
	8.7.4 2 1/2" female adaptor		
	8.7.5 2 1/2" to 1 1/2" wye adaptors		
	9. Electrical Hazards - After completing this module, the student will be able to:	*3-15*	*4-1*
105 (22-23)	9.1 Identify electrical hazards in relation to safety and protection of the fire fighter in suppression.	K-1 S-0	K-2 S-0
105 (22-23) 108 (132) 200 (217)	9.2 Describe the hazards of electricity in relation to the safety and protection of the fire fighter in the fire suppression of:	K-1 S-0	K-2 S-0
	9.2.1 Automobile fires		
	9.2.2 Transformer fires		
	9.2.3 Violent rain and windstorm		
	9.2.4 Laddering a building		
	10. Tactical Procedures - After completing this module, the student will be able to:		*4-1*
302 (99-107)	10.1 Demonstrate the proper procedures necessary to affect extinguishment of a simulated single family residence to include:	K-1 S-1	K-2 S-2

IFSTA Reference	Competency	FF I	FF II
	10.1.1 Attack size line and placement		
	10.1.2 Type of nozzle to be used		
	10.1.3 Tools and equipment needed		
	10.1.4 Size-up considerations		
	10.1.5 Exposure concepts		
	10.1.6 Overhaul procedures		
	10.1.7 Salvage operations		
	10.1.8 Delayed alarm		
	10.1.9 Combustability of contents and structure		
	10.1.10 Location of utilities		
	10.1.11 Lack of smoke detectors		
	10.1.12 Lack of fire escape plan		
	10.2 Demonstrate the proper procedures and describe the special hazards present when effecting extinguishment of a simulated mobile home fire to include:		
	10.2.1 Attack size line and placement		
	10.2.2 Type of nozzle to be used		
	10.2.3 Tools and equipment needed		
	10.2.4 Action analysis considerations		
	10.2.5 Exposure concepts		
	10.2.6 Overhaul procedures		
	10.2.7 Salvage operations		
	10.2.8 Delayed alarm		

IFSTA Reference	Competency	FF I	FF II
	10.2.9 Combustibility of contents and structure 10.2.10 Location of utilities 10.2.11 Lack of smoke detectors 10.2.12 Lack of fire escape plan 10.3 Outline the proper attack procedures for extinguishing a fire and detail the method of extinguishment used. 10.4 Outline the proper attack procedures for the extinguishment of bus and truck fires.		
	11. Public Relations - After completing this module, the student will be able to: 11.1 Describe the methods for reducing fire damage by proper fire fighting tactics to include: 11.1.1 Proper hose line placement 11.1.2 Fighting the fire from the "unburned" portion of the structure 11.1.3 Using the correct fire fighting tools and equipment 11.1.4 Achieving proper ventilation 11.1.5 Using proper salvage and overhaul operations 11.1.6 Avoiding reckless fire fighter practices	*3-11*	*4-11*

IFSTA Reference	Competency	FF I	FF II
	11.2 Describe positive methods to be used when dealing with the public sector to include: 11.2.1 Driving to and from fires 11.2.2 Personal habits and decorum 11.2.3 Public fire education to include: 11.2.3.1 Public school assemblies 11.2.3.2 Home surveys 11.2.3.3 Community organizations NOTE: It is suggested that students should have at least one field trip to other fire departments so as to compare and evaluate other physical facilities, equipment, apparatus, and methods of operation.		

FIRE HYDRAULICS

INVENTORY OF MINIMUM COMPETENCIES AND SKILLS

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1. Requirements, Principles, and Characteristics of Fire Streams. 1
2. Producing or Developing Fire Streams 3
3. Selection and Application of Fire Streams. 5
4. Nozzles and Special Information. 5

Fire Hydraulics

The following competencies are based upon the minimal concepts and skills that are basic to the scope of this course. In no manner should these competencies be construed as providing the maximum knowledge to be gained by the student in completing this course.

IFSTA Reference	Competency	FF I	FF II
	1. Requirements, Principles, and Characteristics of Fire Streams - After completing this module, the student will be able to:		
105 (9-19) 107 (33-41)	1.1 Define a fire stream.	K-1 S-0	K-2 S-0
(107-108)	1.2 Describe water as an extinguishing agent to include:	K-1 S-0	K-2 S-0
	1.2.1 Characteristics of water		
	1.2.2 Heat transfer and heat absorption to include:		
	1.2.2.1 Law of heat flow		
	1.2.2.2 Law of specific heat		
	1.2.2.3 Law of latent heat of vaporization		
	1.2.3 Expansion of water when converted to steam		
	1.2.4 Other extinguishing advantages of water		
	1.2.5 Disadvantages of water as an extinguishing agent		

IFSTA Reference	Competency	FF I	FF II
105 (20-23) (37-51)	1.3 Describe fire stream requirements for:	K-1 S-0	K-2 S-0
	1.3.1 Extinguishing structural fires		
	1.3.2 Extinguishing flammable liquid fires		
	1.3.3 Extinguishing fires involving energized electrical equipment taking into consideration the conduction of fire streams		
	1.3.4 Extinguishing fires involving combustible metals		
105 (62,170-179) 205 (56-82)	1.4 Define the principles of pressure to include:	K-0 S-0	K-1 S-1
	1.4.1 The determination of pounds per square inch (psi)		
	1.4.2 Static pressure		
	1.4.3 Residual pressure		
	1.4.4 Flow pressure		
200 (163,164) 402 (48)	1.5 Define the term "water hammer."	K-2 S-0	K-2 S-0
	1.6 Define friction loss including the principles involved.	K-2 S-0	K-2 S-0
105 (38-40, 150) 107 (106-111)	1.7 Describe the types of fire streams to include:	K-1 S-0	K-2 S-0
	1.7.1 Broken streams		

IFSTA Reference	Competency	FF I	FF II
200 (161,164-169)	1.7.2 Fog or spray streams		
	1.7.3 Solid and master streams		
	1.8 Describe the factors influencing the volume of water discharged.	K-1 S-0	K-2 S-0
	1.9 Identify and describe the reach of a fog stream.	K-1 S-0	K-2 S-0
	1.10 Describe the space occupied by a fog stream.	K-1 S-0	K-2 S-0
	1.11 Identify and describe the flow capacity of solid streams.	K-1 S-0	K-2 S-0
	2. <u>Producing or Developing Fire Streams</u> - After completing this module, the student will be able to:		
105 (57-96)	2.1 Identify and describe the determination of nozzle pressure and water flow to include:	K-1 S-0	K-2 S-0
	2.1.1 Desired and adequate nozzle pressure		
	2.1.2 Formulas, symbols, square root of numbers, and other valuable data		
	2.1.3 Compute water flow in gallons per minute (gpm)		
	2.1.4 Compute gallons per minute flows from fog nozzles		
105 (96-115)	2.2 Calculate the water flow of fire streams to include:	K-1 S-0	K-2 S-0
	2.2.1 Computing friction loss in a		

IFSTA Reference	Competency	FF I	FF II
	2 1/2 inch hose		
	2.2.2 Computing friction loss in hoses other than a 2 1/2 inch hose		
	2.2.3 Supplying more than one hose line		
	2.2.4 Wyed 1 1/2 inch and preconnected hose		
	2.2.5 Siamese hose lines including:		
	2.2.5.1 Size of intake hose		
	2.2.6 Use of Pitot and in-line gauges		
105 (90-96)	2.3 Define the rules of thumb to include:	K-1 S-0	K-2 S-0
	2.3.1 Calculating friction loss by the condensed "Q" formula		
	2.3.2 Calculating friction loss by association		
	2.3.3 Calculating friction loss by gallons per minute flow		
	2.3.4 Methods of applying the rules of thumb		
	2.3.5 Calculating friction loss using in-line gauges located on hose line		
105 (124-128) 200 (348-351) 205 (85-106)	2.4 Describe the procedures used in supplying private fire protection equipment to include:	K-1 S-0	K-2 S-0
	2.4.1 Supplying automatic sprinkler systems		

IFSTA Reference	Competency	FF I	FF II
	2.4.2 Feeding standpipe systems		
	3. Selection and Application of Fire Streams - After completing this module, the student will be able to:		
105 (131-135) 200 (175-179)	3.1 Select the proper fire streams to include:	K-1 S-1	K-2 S-2
	3.1.1 Streams at avenues of fire spread		
	3.1.2 Streams at point of origin to include rate of flow for interior fires		
105 (37-51) 200 (175-179)	3.2 Demonstrate the proper procedures used in water application to include:	K-1 S-1	K-2 S-2
	3.2.1 Rate of application		
	3.2.2 Confining and extinguishing fires		
	3.2.3 Nozzle reaction of solid stream nozzle formula		
	4. Nozzles and Special Information - After completing this module, the student will be able to:		
105 (171-177) 200 (163)	4.1 Determine the required residual pressure necessary for the protection of the main water source.	K-1 S-0	K-2 S-0
	4.2 Conduct fire flow tests using at least two of the three standard methods.		

INTRODUCTION TO FIRE PROTECTION

INVENTORY OF MINIMUM COMPETENCIES AND SKILLS

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2. Scientific Background. 2
3. Fire Protection Services 2
4. Fire Department Organization 3
5. Fire Department Equipment. 5
6. Extinguishing Agents 6
7. Fire Fighting Tactics and Strategy 7
8. Private Fire Protection. 8

Introduction to Fire Protection

The following competencies are based upon the minimal concepts that are basic to the scope of this course. In no manner should these competencies be construed as providing the maximum knowledge to be gained by the student in completing this course.

IFSTA Reference	Competency	FF I	FF II
	1. Choosing a Career in Fire Science - After completing this module, the student will be able to:		
Local Jurisdiction	1.1 Identify the entrance requirements to include:	K-2 S-0	K-2 S-0
	1.1.1 Overall physical qualifications		
	1.1.2 Age limits		
	1.1.3 Educational requirements		
	1.1.4 Character and personality traits		
	1.2 Have a general knowledge of the expected salary to be received.	K-2 S-0	K-2 S-0
	1.3 Identify the hours of duty.	K-2 S-0	K-2 S-0
	1.4 Describe general working conditions.	K-2 S-0	K-2 S-0
	1.5 Describe fringe benefits to include:	K-2 S-0	K-2 S-0
	1.5.1 Vacation and holidays		
	1.5.2 Sick leave		
	1.5.3 Disability leave and disability pensions		
	1.5.4 Retirement pensions		
	1.5.5 Outside employment restrictions		
	1.5.6 Insurance		

IFSTA Reference	Competency	FF I	FF II
	1.5.7 All other fringe benefits		
	1.6 Describe the opportunities and criteria for promotion.	K-2 S-0	K-2 S-0
	1.7 Describe the opportunities available for further education.	K-2 S-0	K-2 S-0
	1.8 Describe various opportunities in private business or industry.	K-1 S-0	K-2 S-0
	2. <u>Scientific Background</u> - After completing this module, the student will be able to:		
200 (3-11)	2.1 Describe the characteristics of fire to include:	K-1 S-0	K-2 S-0
	2.1.1 The classic triangle concept of fire		
	2.1.2 The tetrahedron concept of fire		
	2.1.3 The role of oxygen relative to fire		
	2.1.4 The role of heat realtive to fire		
	2.1.5 Definitions of fuels to include:		
	2.1.5.1 Solids		
	2.1.5.2 Liquids		
	2.1.5.3 Gases		
	2.1.6 The common causes of fires		
	2.1.7 Fire spread		
	2.1.8 Conflagrations		
	3. <u>Fire Protection Services</u> - After completing this module, the student will be able to:		

IFSTA Reference	Competency	FF I	FF II
202 (15-38) (59-80)	3.1 Describe the function of various public organizations to include:	K-2 S-0	K-2 S-0
	3.1.1 County Fire protection agencies		
203 (133)	3.2 Identify state and county fire services in the United States.	K-2 S-0	K-2 S-0
302 (57)	3.3 Describe the available state fire training and education programs.	K-2 S-0	K-2 S-0
	3.4 Describe the role and function of private fire protection agencies such as:	K-2 S-0	K-2 S-0
	3.4.1 The National Fire Protection Association to include:		
	3.4.1.1 Current NFPA activities		
	3.4.1.2 Field Service projects		
	3.4.1.3 Statistical data		
	3.4.1.4 Educational activities		
	3.4.2 The American Insurance Association		
	3.5 Describe the operation and information supplied by inspection and rating bureaus to include:	K-2 S-0	K-2 S-0
	3.5.1 Underwriter's Laboratories, Inc. (UL)		
	4. <u>Fire Department Organization</u> - After completing this module, the student will be able to:		
202 (15-38) (59-80) 301 (9-20)	4.1 Describe the fire department in the context of a semi-military organization to include:	K-2 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
	4.1.1 Classification of confusing terminology		
	4.1.2 Chain of command		
	4.1.3 Need for constant readiness		
Local Jurisdiction	4.2 Describe the departmental organization structure to include:	K-2 S-0	K-2 S-0
	4.2.1 Company make-up		
	4.2.2 Operational organizations for:		
	4.2.2.1 Volunteer and small fire departments		
	4.2.2.2 Large fire departments		
	4.2.3 Other function organizations such as:		
	4.2.3.1 Finance		
	4.2.3.2 Public relations		
	4.2.3.3 Fire investigations		
	4.2.3.4 Planning		
	4.2.3.5 Personnel		
	4.2.3.6 Training		
	4.2.3.7 Fire prevention bureau		
	4.2.3.8 Communications		
	4.2.3.9 Water bureau		
	4.2.3.10 Service (supply) division		
202 (43-53) (89-94) 203 (164)	4.3 Identify and describe the importance of records to include:	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
301 (75-80) 302 (76-80, 99-106)	4.3.1 Company record book or journal		
	4.3.2 Company diary or day book		
	4.3.3 Fire reports		
	4.3.4 Alarm reports		
	4.3.5 Company run-reports		
	4.3.6 Other reports and records		
	5. Fire Department Equipment - After completing this module, the student will be able to:		
106 (3-17)	5.1 Identify and describe the function of pumpers.	K-2 S-0	K-2 S-0
	5.2 Identify and describe the function of pumps to include:	K-2 S-0	K-2 S-0
	5.2.1 Pumper manpower needed		
202 (43-56)	5.3 Identify and describe the function of Grass or Brush Fire trucks.	K-2 S-0	K-2 S-0
103 (1-42) 200 (99-101)	5.4 Identify and describe the function of Hose Carriers to include:	K-1 S-0	K-2 S-0
	5.4.1 Various types of hoses used		
102 (11-12) (26-37) 200 (37-41)	5.5 Identify and describe the function of Ladder trucks to include:	K-1 S-0	K-2 S-0
	5.5.1 Ground trucks		

IFSTA Reference	Competency	FF I	FF II
	5.5.2 Aerial equipment		
	5.5.3 Combinations		
	5.5.4 Elevating platform apparatus (Snorkel)		
	5.5.5 Heavy stream devices		
106 (13-14)	5.6 Identify and describe the function of Squad	K-1	K-1
106 (16)	and Rescue trucks	S-0	S-0
202 (43-56)	5.7 Identify and describe the function of Power	K-0	K-1
	and Light trucks.	S-0	S-0
101 (150-169)	5.8 Identify and describe the function of Fire	K-1	K-2
200 (13-22)	Extinguishers.	S-0	S-0
108 (28-29)	5.9 Identify and describe the function of pro-	K-1	K-2
(50-58) 200 (251-261)	tective equipment to include:	S-0	S-0
	5.9.1 Respiratory protective equipment		
	5.9.2 Self-contained breathing apparatus		
	5.9.3 Personal equipment		
	6. Extinguishing Agents - After completing this module, the student will be able to:		
200 (161-166)	6.1 Describe the use of water as an extinguish-	K-1	K-2
	ing agent to include:	S-0	S-0
	6.1.1 Heavy streams		
	6.1.2 Hand line streams		
	6.1.3 Fog		

IFSTA Reference	Competency	FF I	FF II
201 (43-55)	6.2 Describe the use of foam as an extinguishing agent.	K-1 S-0	K-2 S-0
101 (151-168)	6.3 Describe the use of wetting agents.	K-1 S-0	K-2 S-0
200 (19-20)	6.4 Describe the use of dry chemicals as extinguishing agents.	K-1 S-0	K-1 S-0
200 (19)	6.5 Describe the use of carbon dioxide as an extinguishing agent.	K-1 S-0	K-2 S-0
101 (151-168)	6.6 Describe the use of halogenated hydrocarbons as extinguishing agents.	K-1 S-0	K-2 S-0
101 (151-168)	6.7 Describe the use of dry powders as extinguishing agents.	K-1 S-0	K-2 S-0
	7. <u>Fire Fighting Tactics and Strategy</u> - After completing this module, the student will be able to:		
302 (35-69)	7.1 Describe the essentials in preplanning to include: 7.1.1 Geography and weather 7.1.2 Traffic conditions 7.1.3 Building locations 7.1.4 Building construction 7.1.5 Type of occupancy	K-1 S-0	K-2 S-0
302 (67-69) 304 (62, 97)	7.2 Describe the essentials of "size-up" to include: 7.2.1 Rescues 7.2.2 Exposures	K-0 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
	7.2.3 Confinement		
	7.2.4 Extinguishment		
	7.2.5 Bulk flammable liquid fires		
	7.2.6 Ventilation		
	7.2.7 Overhaul		
	7.2.8 Salvage		
	8. Private Fire Protection - After completing this module, the student will be able to:		
Local Jurisdiction	8.1 Describe the organizational structure and functions to include:	K-1 S-0	K-2 S-0
	8.1.1 Management		
	8.1.2 Private fire brigades		
	8.1.3 Employee participation		

INTRODUCTION TO FIRE PREVENTION

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Introduction to Fire Prevention

The following competencies are based upon the minimal concepts that are basic to the scope of this course. In no manner should these competencies be construed as providing the maximum knowledge to be gained by the student in completing this course.

IFSTA Reference	Competency	FF I	FF II
	1. Introduction - After completing this module, the student will be able to:		
110 (1-3) 200 (280-290)	1.1 Identify and describe the duties of a fire prevention inspector.	K-1 S-0	K-2 S-0
	1.2 Identify and describe the duties of a fire company inspector.	K-1 S-0	K-2 S-0
	1.3 List at least six objectives of a fire department inspector.	K-1 S-0	K-2 S-0
110 (85-87) 200 (290-293)	1.4 Describe the general procedures for handling complaints.	K-2 S-0	K-2 S-0
Local Jurisdiction	1.5 Describe the legally established responsibilities and empowerment related to the performance of his/her duties.	K-1 S-0	K-2 S-0
	2. Fire Hazards and Causes - After completing this module, the student will be able to:		
107 (17-18) 402 (79-89)	2.1 Describe and define the chemistry of fire to include:		
	2.1.1 Identification and description of the general properties of flammable and combustible liquids	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
107 (17-18) 402 (79-89)	2.1.2 Describe the basic effect of temperature and pressure on flammable and combustible liquids	K-1 S-0	K-2 S-0
402 (79-89)	2.1.3 Define toxicity	K-1 S-0	K-2 S-0
402 (116-118)	2.1.4 Define radioactivity	K-1 S-0	K-2 S-0
110 (7-19)	2.2 Define the term fire hazard.	K-1 S-0	K-2 S-0
	2.2.1 List at least five fuel supply hazards		
110 (7-19) 200 (296-298) (307-310)	2.3 Describe the requirements, need, and purpose for fire cause determination and investigation.	K-1 S-0	K-2 S-0
110 (7-19) 200 (296-298)	2.4 Define and describe the term common hazard to include:	K-1 S-0	K-2 S-0
	2.4.1 Four examples of conditions		
	2.4.2 Four examples of reporting		
110 (19-20)	2.5 Define and describe the term special hazard as it relates to an occupancy.	K-1 S-0	K-2 S-0
110 (13)	2.6 Define and describe the term target hazard and identify one in the local jurisdiction.	K-1 S-0	K-1 S-0
110 (13-14) 200 (297)	2.7 Define and describe the term transportation hazard.	K-1 S-0	K-2 S-0
200 (3-5)	2.8 Identify and define the term "Fire Diamond" and describe its purpose.	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
110 (18)	2.9 Define and describe the term exposure hazard and identify one in the local jurisdiction.	K-1 S-0	K-2 S-0
110 (18-19)	2.10 Define and describe the term conflagration hazard and identify one in the local jurisdiction.	K-1 S-0	K-2 S-0
	3. Classification - After completing this module, the student will be able to:		
110 (19-21)	3.1 Define and list one example of each of the following occupancies found in the area having jurisdiction to include:	K-0 S-0	K-0 S-0
	3.1.1 Assembly		
	3.1.2 Business		
	3.1.3 Educational		
	3.1.4 High Hazard		
	3.1.5 Industrial		
	3.1.6 Institutional		
	3.1.7 Mercantile		
	3.1.8 Residential		
	3.1.9 Storage		
	3.1.10 Mixed		
	4. Judging the Fire Load - After completing this module, the student will be able to:		
110 (21)	4.1 Define and describe the method for judging fire load.	K-0 S-0	K-0 S-0

IFSTA Reference	Competency	FF I	FF II
	5. Building Construction - After completing this module, the student will be able to:		
110 (24-28)	5.1 Describe fire resistive building construction. (Type A)	K-1 S-0	K-1 S-0
	6. Private Fire Protection - After completing this module, the student will be able to:		
110 (28)	6.1 Define and describe private fire protection.	K-1 S-0	K-2 S-0
101 (150-179) 200 (13-23) 201 (43-55)	6.2 Define and describe portable fire extinguishers to include: 6.2.1 Types 6.2.2 Evaluating the operational readiness 6.2.3 Capability of extinguishing agents and the proper method for agent application 6.2.4 Code requirements and regulations relative to the distribution and location	K-1 S-0	K-2 S-0
200 (343-352) 205 (85-101)	6.3 Define automatic system components and describe their purpose.	K-0 S-0	K-1 S-0
110 (28)	6.4 Describe the articulation between private fire protection and the fire department.	K-1 S-0	K-2 S-0
200 (349-351)	6.5 Describe the conditions which detract from the value of installed systems.	K-0 S-0	K-0 S-0

IFSTA Reference	Competency	FF I	FF II
104 (110) 105 (125-126) 200 (154)	6.6 Identify and describe standpipe systems inspection procedures.		
200 (340-341) 205 (47-56) 302 (28)	6.7 Identify and describe outside protection systems to include: 6.7.1 Components 6.7.2 Hydrant locations 6.7.3 OS and Y and PIV valves	K-1 S-0	K-2 S-0
200 (329-332) 302 (14-15) 304 (79)	6.8 Identify and describe automatic signaling systems to include: 6.8.1 Local fire alarm systems and devices 6.8.2 Evaluation of operational readiness of local fire alarm systems and devices 6.8.3 Municipal fire alarm systems	K-1 S-0	K-2 S-0
	7. Inspection Techniques and Procedures - After completing this module, the student will be able to:		
110 (37-41) 200 (289-302) 201 (207-215)	7.1 Describe the personal requirements needed to do inspections to include: 7.1.1 Knowledge of acceptable code enforcement procedures	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
	7.1.2 Ability and knowledge to anticipate human behavior relative to code enforcement		
	7.1.3 Knowledge of local code enforcement procedures		
	7.1.4 Confidence to conduct an inspection		
110 (37-38) 200 (290) 201 (210-211)	7.2 Identify and describe the equipment essential to accomplish code enforcement to include:	K-1 S-0	K-1 S-0
	7.2.1 Elementary photography equipment		
	7.2.2 Portable flammable and combustible atmosphere detection equipment		
110 (39-41) 200 (290-301)	7.3 Describe the proper approach procedure to be used when conducting an inspection to include:	K-1 S-0	K-2 S-0
	7.3.1 Preparation materials		
	7.3.2 Pre-approach information		
	7.3.3 Observations to be made before entering the property		
	7.3.4 Permission and accompaniment		
110 (41-44) 200 (293-296)	7.4 Describe the proper procedure to be used in making the inspection to include:	K-0 S-0	K-1 S-0
	7.4.1 Use of maps in pre-fire planning		
	7.4.2 Inspection sketching		

IFSTA Reference	Competency	FF I	FF II
	7.4.3 Recording of data including plot plan, area, exposures, water supply, etc.		
	7.4.4 Recording of floor plans		
	7.4.5 Photographing		
	8. Records, Recommendations, and Inspection Reports - After completing this module, the student will be able to:		
110 (45-53)	8.1 Identify and describe the kinds of fire inspection records required.	K-0 S-0	K-1 S-0
110 (45-53)	8.2 Demonstrate the ability to complete prepared inspection forms and check lists.	K-0 S-0	K-1 S-0
	8.2.1 Describe the advantages and disadvantages of their use		
110 (45-53) 200 (299-304)	8.3 Demonstrate the ability to properly complete an inspection report to include:	K-0 S-0	K-1 S-0
	8.3.1 Reasons		
	8.3.2 Information to be included		
	8.3.3 Arrangement of information		
	8.3.4 References		
	8.3.5 General information		
	8.3.6 Specific information		
	8.3.7 Outline of recommendations based on basic knowledge of report preparation.		

IFSTA Reference	Competency	FF I	FF II
110 (43-53) 200 (299-304)	8.4 Describe steps in arriving at reasonable recommendations to include: 8.4.1 A list of considerations	K-0 S-0	K-1 S-0
200 (298)	8.5 Demonstrate the ability to test heat activating devices by: 8.5.1 Describing heat, smoke, and flame detection systems and devices 8.5.2 Evaluating the operational readiness of heat, smoke, and flame detection systems	K-0 S-0	K-1 S-0
110 (8-11)	8.6 Describe the fire and life hazards associated with the typical uses of electricity and electrical systems to include: 8.6.1 Method of checking sizes of electrical wiring	K-0 S-0	K-1 S-0
110 (37-41) 200 (290-293)	8.7 Describe the proper procedure for conducting an inspection to include: 8.7.1 Selecting the correct items to inspect 8.7.2 Entering the building 8.7.3 Questions to be asked 8.7.4 Recommendations to be made 8.7.5 Final interviews 8.7.6 Re-inspections 8.7.7 Telephone interviews	K-0 S-0	K-1 S-0

IFSTA Reference	Competency	FF I	FF II
	8.7.8 Public relations strategies including:		
	8.7.8.1 An established appeals procedure and judicial review process		
110 (45-54) 200 (302-304)	8.8 Demonstrate basic knowledge by preparing a report for a hypothetical inspection as an open book project.	K-0 S-0	K-1 S-0
	9. Inspections and Surveys by Fire Companies - After completing this module, the student will be able to:		
110 (55-82) (97) 200 (296)	9.1 Field test decorations, decorative materials, and furnishings for acceptability and use in various occupancies.	K-1 S-0	K-2 S-0
200 (301)	9.2 Determine if egress facilities are adequate for building, floor, or room occupancies.	K-1 S-0	K-2 S-0
110 (85-86)	9.3 Check the adequacy of fire protection equipment.	K-1 S-0	K-2 S-0
110 (87-88)	9.4 Identify the processes, procedures, or business operations involving fire protection equipment that require licenses, or permits, or both.	K-1 S-0	K-2 S-0
110 (86-87) 200 (291-293)	9.5 Assist an owner/occupant to understand and improve existing conditions to include:	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
	9.5.1 Describing the general safety code requirements and regulations including, but not limited to:		
	9.5.1.1 Trash and debris		
	9.5.1.2 Smoking		
	9.5.1.3 Open burning		
	9.5.1.4 Maintaining fire department access		
	9.5.1.5 Housekeeping procedures		
	9.5.1.6 Reporting of fire incidents		
	9.5.1.7 Limiting combustible decorations and furnishings		
110 (86-87)	9.6 Describe the procedures and purpose of emergency evacuation plans	K-1 S-0	K-1 S-0
302 (31-32)	9.7 Describe the types of fire doors and installation requirements	K-1 S-0	K-1 S-0
110 (69-82) 200 (298)	9.8 Define and describe the proper procedures for home inspection by fire companies.	K-1 S-0	K-2 S-0
	9.8.1 Value of fire service		
	9.8.2 Rights, legalities, and responsibilities of the fire service		
	9.8.3 Responsibilities of the company officer		

IFSTA Reference	Competency	FF I	FF II
	9.8.4 Responsibilities of the fire fighter		
	9.8.5 Home fire hazards to include:		
	9.8.5.1 Hazards related to the various types of heating and cooling equipment		
	9.8.5.2 Hazards and code requirements related to installation and fuel storage of heating and cooling equipment		
110 (74) 200 (300)	9.9 Describe and identify items to be checked from the outside including:	K-1 S-0	K-2 S-0
	9.9.1 Storage, handling, and use of combustible and flammable liquids to include:		
	9.9.1.1 Hazards associated with storage, handling, and use		
	9.9.1.2 Hazards attendant to transfer		
	9.9.1.3 Regulations and hazards attendant to finishing processes		
	9.9.1.4 Possible sources of ignition		
	9.9.1.5 Conditions conducive		

IFSTA Reference	Competency	FF I	FF II
	to creating explosive atmospheres		
110 (74-75) 200 (300-301)	9.10 Describe and identify items to be checked in the basement or attic.	K-1 S-0	K-2 S-0
110 (72-82) 200 (298-304)	9.11 Initiation of correct procedures for fire hazards discovered during fire inspections.	K-1 S-0	K-2 S-0
	10. Above Ground Storage Tanks for Flammable and Combustible Liquids - After completing this module the student will be able to:		
110 (12-14) 200 (296-298)	10.1 Define and describe the regulations and acceptable installation practices of above ground storage tanks for flammable and combustible liquids to include:	K-1 S-0	K-2 S-0
	10.1.1 A determination of proper drainage and/or diking systems		
	10.1.2 Piping and valves		
	10.1.3 Identify and describe acceptable containers for outside storage		
	11. Inside Storage Tanks for Flammable and Combustible Liquids - After completing this module, the student will be able to:		
107 (54-60)	11.1 Determine if normal and emergency venting devices have been properly maintained.	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
	12. Transportation of Flammable and Combustible Liquids - After completing this module, the student will be able to:		
Local Jurisdiction	12.1 Demonstrate an understanding of regulations relative to the transportation within the jurisdiction where he/she is employed, to include:	K-1 S-0	K-2 S-0
	12.1.1 Agencies that regulate transportation		
	12.1.2 Agencies that offer assistance in handling		
	13. Flammable and Combustible Liquids Fire Extinguishment - After completing this module, the student will be able to:		
101 (148-168) 200 (176-177)	13.1 Describe the basic techniques of flammable and combustible liquids fire extinguishment.	K-1 S-0	K-2 S-0
101 (169-175) 200 (13-23)	13.2 Describe the requirements for the installation of portable fire extinguishers.	K-1 S-0	K-2 S-0
	14. Interior Finishes - After completing this module, the student will be able to:		
Local Jurisdiction	14.1 Conduct a field test of interior finish materials.	K-1 S-1	K-2 S-1
110 (72-73)	14.2 Describe the moral and legal responsibilities associated with code enforcement procedures.	K-1 S-0	K-2 S-0

IFSTA Reference	Competency	FF I	FF II
	15. <u>Special Types of Inspections by an Individual</u> - After completing this module, the student will be able to:		
110 (1-3) 200 (289-296)	15.1 Describe the fire department inspection organization.	K-1 S-0	K-1 S-0
110 (2-3) (85-88)	15.2 Identify the objectives of the fire department inspection organization to include:	K-1 S-0	K-2 S-0
	15.2.1 Obtaining proper life safety conditions to include:		
	15.2.1.1 Determining whether travel distances to exits are within allowable limits		
	15.2.1.2 Determining if there is access to egress facilities		
	15.2.1.3 Determining if exits are properly illuminated, marked, placed, secured, openable, and equipped with hardware		
	15.2.1.4 Distinguishing between enclosed stairwells and smoke towers and determining if general construction and access is properly maintained		

IFSTA Reference	Competency	FF I	FF II
110 (89-93) 200 (305-306)	15.3 Describe the proper procedures for a school inspection to include:	K-1 S-0	K-2 S-0
	15.3.1 Requirements relative to fire drills within the jurisdiction of the students' employ		
	15.3.2 Conducting and/or evaluating fire drills in various occupancies		
	16. Authoritative Sources - After completing this module, the student will be able to:		
110 (101-108)	16.1 Identify and describe authoritative sources of information on code enforcement procedures to include:	K-1 S-0	K-2 S-0
	16.1.1 Reference list		
	16.1.2 National Fire Codes (NFPA)		
	16.1.3 Building codes		
	16.1.4 Fire prevention codes including:		
	16.1.4.1 Uniform Fire Code		
	16.1.5 NFPA Inspection Manual		
	17. Hazardous Materials Security - After completing this module, the student will be able to:		
110 (8-14)	17.1 Describe the need for security of hazardous materials to include:	K-1 S-0	K-2 S-0
	17.1.1 Explosives		
	17.1.2 Flammable and combustible liquids to include:		

IPSTA Reference	Competency	FF I	FF II
	17.1.2.1 Acceptable containers for inside storage		
	17.1.3 Flammable and combustible solids		
	17.1.4 Corrosive liquids		
	17.1.5 Compressed gases to include:		
	17.1.5.1 General properties		
	17.1.5.2 Differences between compressed and liquified gases.		
110 (8-14)	17.2 Define the term oxidizing material to include:	K-1 S-0	K-1 S-0
	17.2.1 General characteristics		
	17.2.2 Identifying the more common oxidizing materials		

FIRE APPARATUS

INVENTORY OF MINIMUM COMPETENCIES AND SKILLS

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3. Maneuvering Fire Apparatus. 1
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Fire Apparatus

The following competencies are based upon the minimal concepts that are basic to the scope of this course. In no manner should these competencies be construed as providing the maximum knowledge to be gained by the student in completing this course.

IFSTA Reference	Competency	FF I	FF II
	1. Origin and Development of Fire Apparatus - After completing this module, the student will be able to:		
106 (3-6) 302 (28)	1.1 Describe, in general, the purpose and scope of fire service apparatus.	K-1 S-0	K-1 S-0
	1.2 Describe the transition to modern-day apparatus.	K-1 S-0	K-1 S-0
	1.3 Describe present-day requirements.	K-1 S-0	K-1 S-0
	2. Automotive Fire Apparatus - After completing this module, the student will be able to:		
106 (9-17)	2.1 Classify and describe fire apparatus by types, to include:	K-2 S-0	K-2 S-0
	2.1.1 Pumps		
	2.1.2 Aerial ladders		
	2.1.3 Tank and/or rural apparatus		
	2.1.4 Rescue apparatus		
	2.1.5 Power and floodlight apparatus		
	3. Maneuvering Fire Apparatus - After completing this module, the student will be able to:		
106 (21-29)	3.1 Define the requirements for a driver	K-2	K-2

IFSTA Reference	Competency	FF I	FF II
202 (43-53) 302 (17-19)	and the apparatus to include:	S-0	S-0
	3.1.1 Driving regulations		
	3.1.2 Responsibilities		
	3.1.3 Safe driving practices		
	3.1.4 Driving the vehicle		
106 (32-38)	3.2 Demonstrate the following driving exercises	K-2	K-2
	to include:	S-2	S-2
	3.2.1 Braking		
	3.2.2 Serpentine exercise		
	3.2.3 Alley dock		
	3.2.4 Opposite alley		
	3.2.5 Diminishing clearance		
	3.2.6 Straight line		
	3.2.7 Turning around		
	3.2.8 Driver's road test		
106 (39-47)	3.3 Demonstrate the ability to correctly spot	K-0	K-0
	apparatus to include: (not required for	S-0	S-0
	FF I and FF II certification.)		
	3.3.1 Spotting pumpers		
	3.3.2 Spotting aerial ladders		
	3.3.3 Spotting elevated platforms		
	4. Mechanical Performance of Fire Apparatus - After completing this module, the student will be able to:		

IFSTA Reference	Competency	FF I	FF II
106 (51-102)	4.1 Identify and describe the operation of fire department pumpers to include:	K-1 S-0	K-2 S-0
	4.1.1 Features and functions		
	4.1.2 Centrifugal principle to include:		
	4.1.2.1 Centrifugal pump, in general		
	4.1.2.2 Single-state centrifugal pump		
	4.1.2.3 Multi-size centrifugal pump		
	4.1.3 Volume on pressure positions and valves		
	4.1.4 Positive displacement principle to include:		
	4.1.4.1 Rotary gear (positive pump)		
	4.1.4.2 Rotary vane pump		
	4.1.4.3 Piston pumps		
	4.1.5 Pumps for fire apparatus, to include:		
	4.1.5.1 Pressure-valve pumps		
	4.1.5.2 Booster pumps		
	4.1.5.3 High pressure pumps		
	4.1.6 Pump drives		
	4.1.7 Pump shifting devices		
	4.1.8 Pump connections		
	4.1.9 Putting pump in gear		

IFSTA Reference	Competency	FF I	FF II
	4.1.10 Getting water into the pump		
	4.1.11 Pump control to include:		
	4.1.11.1 Relief valve		
	4.1.11.2 Pressure regulator or governor		
	4.1.12 Primary devices		
	4.1.13 Pump valves		
	4.1.14 Tachometer and gauges		
	4.1.15 Auxiliary cooling systems		
	4.1.16 Pump bypass proportioners		
	4.1.17 Pumping		
	4.1.18 Shutting down pumps		
	4.1.19 Troubles, causes, and suggestions while operating pumps		
106 (103-122)	4.2 Demonstrate a knowledge of the operation of aerial ladder apparatus to include: (The fire fighter's responsibility is to assist the driver in the operation of such apparatus.)	K-1 S-1	K-2 S-2
	4.2.1 Aerial ladder		
	4.2.2 Hoisting cylinders and extension cables		
	4.2.3 Turntable		
	4.2.4 Control pedestals		
	4.2.5 Aerial ladder locks and stops		

IFSTA Reference	Competency	FF I	FF II
	4.2.6 Stabilizing jacks		
	4.2.7 Preparing aerial ladders for use to include:		
	4.2.7.1 Set braking devices and engage hydraulic pump		
	4.2.7.2 Place wheel chocks		
	4.2.7.3 Stabilize the apparatus		
	4.2.8 Placing aerial ladders in position to include:		
	4.2.8.1 Elevation of ladder assembly		
	4.2.8.2 Rotation of the ladder assembly		
	4.2.8.3 Extension of fly sections		
	4.2.8.4 Lowering the object		
	4.2.9 General safety factors		
	4.2.10 Operating elevated ladder pipes		
	4.2.11 Operating specific types		
106 (125-132)	4.3 Demonstrate a knowledge of the operation of elevating platform apparatus to include: (The fire fighters responsibility is to assist the driver in the operation of such apparatus.)	K-1 S-1	K-2 S-2
	4.3.1 General safety factors in order to conduct a safety inspection		

IFSTA Reference	Competency	FF I	FF II
	5. Maintenance of Fire Apparatus - After completing this module, the student will be able to:		
106 (133-144)	5.1 Identify and prepare maintenance schedules to include:	K-2 S-2	K-2 S-2
	5.1.1 Apparatus maintenance		
	5.1.2 Equipment maintenance		
	5.1.3 Fire apparatus records		
106 (145-154) 203 (83) 208 (135-152)	5.2 Demonstrate and describe a systematic maintenance program to include:	K-2 S-2	K-2 S-2
	5.2.1 Cleanliness		
	5.2.2 Lubrication		
	5.2.3 Electrical components		
	5.2.4 Engine maintenance		
	5.2.5 Chassis components		
	5.2.6 General fire pump maintenance		
	5.2.7 Fuel and water supply tanks		
	5.2.8 Aerial ladder maintenance		
	5.2.9 Elevating platform maintenance		
106 (155-168)	5.3 Demonstrate the testing of fire pumpers to include:	K-2 S-1	K-2 S-1
	5.3.1 Road performance tests		
	5.3.2 Pumper acceptance and certification		
	5.3.3 Service tests		
	5.3.4 Dry-vacuum test		

FIRE FIGHTING TACTICS AND STRATEGY

INVENTORY OF MINIMUM COMPETENCIES AND SKILLS

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FIRE FIGHTING TACTICS AND STRATEGY

The following competencies are based upon the minimal concepts that are basic to the scope of this course. In no manner should these competencies be construed as providing the maximum knowledge to be gained by the student in completing this course.

IFSTA Reference	Competency	FF I	FF II
	1. Introduction - After completing this module, the student will be able to:		
200 (161-162)	1.1 Identify and define the basic resources of an engine company to include:	K-1 S-0	K-2 S-0
	1.1.1 Primary fire fighting agent-water		
	1.1.2 Manpower to be used on the fire-ground		
200 (19, 20, 99, 100, 109) (169, 170, 251, 252)	1.2 Identify and define recent technical improvements in fire fighting equipment to supplement and increase the efficient use of water to include:	K-1 S-0	K-2 S-0
	1.2.1 Personal protective equipment		
	1.2.2 Design of nozzles, hose, and other appliances		
	1.2.3 Extinguishing agents		
	1.3 Define and describe the basic objectives of a fire fighting plan according to their priority of importance.		
200 (6-8, 10)	1.4 Define and describe each of the following terms:	K-1 S-0	K-2 S-0
	1.4.1 Fire spread		
	1.4.2 Methods of heat transfer		

IFSTA Reference	Competency	FF I	FF II
	1.4.3 Flashover as it relates to fire spread		
	1.4.4 Smoldering fires		
	1.4.5 Backdraft		
	2. Equipment and Initial Hose Operation - After completing this module, the student will be able to:		
200 (104-117)	2.1 Identify the basic engine company equipment and describe the use of each, to include:	K-1 S-0	K-2 S-0
	2.1.1 Pumps		
	2.1.2 Booster line		
	2.1.3 1 1/2" line, preconnect		
	2.1.4 2 1/2" line, preconnect		
	2.1.5 Deluge set, preconnect		
	2.1.6 Suction intakes		
	2.1.7 Divided hose beds		
	2.1.8 Check valve		
	2.1.9 Two-way valves		
	2.1.10 Gate valves		
200 (118-119)	2.2 Describe two advantages and disadvangates of using one piece (single pumper) hose lays to include:	K-1 S-0	K-1 S-0
	2.2.1 Hydrant to fire (uncharged line)		
	2.2.2 Direct attack with tank water and no supply line		

IFSTA Reference	Competency	FF I	FF II
	2.2.3 Fire to hydrant (reverse charged line)		
200 (132)	2.3 Describe a straight and a standard reverse lay used in a two piece (two pumper) operation.	K-1 S-0	K-1 S-0
	3. <u>Apparatus Positioning</u> - After completing this module, the student will be able to:		
106 (39-40)	3.1 Discuss the relationship between prefire planning and apparatus positioning to include:	K-0 S-0	K-0 S-0
	3.1.1 Five occupanices that warrant prefire planning		
	3.1.2 Three conditions that affect apparatus positioning		
106 (21-30)	3.2 Describe the basic coverage responsibility to include:	K-0 S-0	K-0 S-0
	3.2.1 Basic operating procedure		
	3.2.2 A specific situation which makes this concept impractical		
106 (39-43)	3.3 Identify the term "Position-Front" coverage as it relates to:	K-0 S-0	K-0 S-0
	3.3.1 Narrow detached buildings		
	3.3.2 Wide frontage buildings		
	3.3.3 Attached structures		
106 (39-43)	3.4 Identify the term "Position-Rear" coverage	K-0	K-0

IFSTA Reference	Competency	FF I	FF II
	at it relates to:	S-0	S-0
	3.4.1 Detached buildings		
	3.4.2 Attached buildings		
106 (39-43)	3.5 Identify the term "Position-Side" coverage and describe a situation where it must be given consideration.	K-0 S-0	K-0 S-0
	3.6 List four types of "Problem" buildings to include:		
	3.6.1 Two "Problem" buildings in the local area of jurisdiction.		
	4. Rescue - After completing this module, the student will be able to:		
200 (209-233)	4.1 Broadly define:	K-1 S-0	K-2 S-0
	4.1.1 Rescue carries		
	4.1.2 Ladder operation		
	4.1.3 Assisting and directing occupants to safety		
	4.1.4 Search		
	4.1.5 Line placement		
	4.1.6 Ventilation		
200 (209-233)	4.2 Describe the chronology of rescue to include:	K-1 S-0	K-2 S-0
	4.2.1 Before the alarm		
	4.2.2 During the alarm		
	4.2.3 At the fire scene		

IFSTA Reference	Competency	FF I	FF II
108 (4, 133-41) 200 (209-215)	4.3 Describe the fire attack for rescue	K-1 S-0	K-2 S-0
	4.4 Describe the fire operations necessary to effect rescue from:	K-1 S-0	K-2 S-0
	4.4.1 Single family dwellings		
	4.4.2 Multiple family dwellings		
	4.4.3 Hospitals, schools, institutions		
	4.4.4 Fire resistant construction		
108 (160, 133-141) 200 (209-215)	4.5 Describe the advantages of a standard search procedure to include:	K-1 S-0	K-2 S-0
	4.5.1 The pattern		
	4.5.2 What to check		
	4.5.3 Methods to indicate a room has been searched		
	5. <u>Water Supply</u> - After completing this module, the student will be able to:		
200 (161-163)	5.1 Identify three factors that influence water movement.	K-1 S-0	K-2 S-0
200 (335-341)	5.2 Identify four possible sources of water at a fireground.	K-1 S-0	K-2 S-0
106 (51-75) 200 (163)	5.3 Identify the following terms:	K-0 S-0	K-1 S-0
	5.3.1 Pump capacity		
	5.3.2 Pump intake		
	5.3.3 Pump discharges		
	5.3.4 Pump speed and capacity		
	5.3.5 Residual pressure		

IFSTA Reference	Competency	FF I	FF II
200 (163-164)	5.4 Describe the friction loss and carrying capacity of:	K-0 S-0	K-1 S-0
	5.4.1 2 1/2" lines		
	5.4.2 2" to 2 1/2" lines		
	5.4.3 3" lines		
	5.5 Describe a typical pumper relay operation		
	6. Initial Attack Lines - After completing this module, the student will be able to:		
200 (109-110) (177-182)	6.1 Describe the conditions where used and the advantages and disadvantages of:	K-1 S-0	K-2 S-0
	6.1.1 Indirect vs. direct fire attack		
	6.1.2 1 1/2" vs. 2 1/2" attack lines		
	6.1.3 Solid stream vs. fog nozzle		
	6.1.4 Multi-fire line attack at:		
	6.1.4.1 Small structures		
	6.1.4.2 Second floor fire in a four floor building		
	6.2 Describe the initial attack procedures used at:		
	6.2.1 Combination commercial and apartment building where the first floor of the commercial building is totally involved.		
	6.2.2 Basement storage room of a modern garden apartment.		

IFSTA Reference	Competency	FF I	FF II
	6.2.3 Advancing lines to upper stories in a multi-floor building via: 6.2.3.1 Stairways 6.2.3.2 Ladders 6.2.3.3 Hoisting with ropes 6.2.3.4 Carrying into a building and lowering through a window (backstitching). 6.2.3.5 Up the side of a building with a pike pole 6.2.4 Ventilation needs 6.2.5 Describe the operational procedure necessary for: 6.2.5.1 Smoldering fires 6.2.5.2 Backdraft dangers to include: 6.2.5.2.1 Ventilation needs 6.2.5.2.2 Initial attack 7. Backup Lines - After completing this module, the student will be able to: 7.1 Describe the uses of backup lines to include: 7.1.1 Positioning		

IFSTA Reference	Competency	FF I	FF II
	7.1.2 Sizes of lines 7.1.2.1 Backup 1 1/2" lines 7.1.2.2 Backup 2 1/2" lines 7.2 Describe the procedure when using heavy streams. 7.3 Identify the necessary personnel needed. 8. Exposure Protection - After completing this module, the student will be able to: 8.1 Identify and describe the types of exposures that need protection to include: 8.1.1 Exterior exposures to include initial response considerations: 8.1.1.1 Factors affecting severity 8.1.1.2 Size-up 8.1.2 Convection exposures 8.1.3 Radiant heat 8.1.4 Exterior exposure coverage to include: 8.1.4.1 Streams to be used 8.1.4.2 Hoseline needed and stream positions 8.1.5 Interior exposures to include: 8.1.5.1 Fire in concealed spaces 8.1.5.2 Vertical fire spread		

IFSTA Reference	Competency	FF I	FF II
	8.1.5.2.1 Signs of		
	8.1.5.2.2 Control of		
	8.1.5.3 Horizontal fire spread		
	8.1.5.4 Open interior spread		
	8.2 Describe the operational procedures used in controlling basement fires to include:		
	8.2.1 Controlling the main body of fire		
	8.2.2 Openings and line placement to include:		
	8.2.2.1 Proper size and number		
	8.2.2.2 Interior stairs		
	8.2.2.3 Outside entrances		
	8.2.3 Ventilation		
	8.2.4 Protecting exposures from vertical and horizontal fire spread		
	9. <u>Heavy Stream Devices</u> - After completing this module, the student will be able to:		
200 (164-170)	9.1 Describe the needs and uses for different types of heavy streams to include:	K-1 S-0	K-2 S-0
	9.1.1 Nozzles for solid streams as compared to fog streams		
	9.1.2 Water supply needed		
	9.1.3 Positioning		
	9.1.4 Direction and shutdown		

IFSTA Reference	Competency	FF I	FF II
	10. Tactical Use of Protective Systems - After completing this module, the student will be able to:		
103 (120-121) 200 (149-154)	10.1 Describe the importance and uses of different types of standpipe systems to include:	K-2 S-0	K-2 S-0
	10.1.1 Dry, multiple dry, wet and multiple wet systems		
	10.1.2 Water supply to include:		
	10.1.2.1 Water mains		
	10.1.2.2 Valves		
	10.1.2.3 Other sources		
	10.1.2.4 Fire department connection (Siamese) to include:		
	10.1.2.4.1 Hooking up		
	10.1.2.4.2 Damaged siamese		
	10.1.2.4.3 Pumper positioning		
103 (120-121) 200 (149-154) (209,217) (239,260)	10.2 Describe the operational procedure for fire attack from a standpipe system to include:	K-2 S-0	K-2 S-0
	10.2.1 Equipment needed		
	10.2.1.1 Hose and appliances		
	10.2.1.2 Tools		

IFSTA Reference	Competency	FF I	FF II
	10.2.2 Entering a building 10.2.2.1 Safety considerations 10.2.2.2 Checking above the fire 10.2.2.3 Elevator use 10.2.3 Beginning the attack operation to include: 10.2.3.1 Checking the floor below the fire for connections in corridors 10.2.3.2 Standpipe connections 10.2.3.2.1 Enclosed stairwell 10.2.3.2.2 2 1/2" outlet, wye, and 1 1/2" lines 10.2.3.2.3 Dangers in use of house lines 10.2.3.2.4 Size of the fire vs. size of the attack line 10.2.4 Fire resistant structures 10.3 Other uses of standpipes to include: 10.3.1 Fire attack from an adjoining		

IFSTA Reference	Competency	FF I	FF II
	building		
	10.3.2 Exposure protection		
	10.3.3 Use of water from uninvolved buildings		
200 (343-351)	10.4 Describe the importance and use of various types of Automatic Sprinkler Systems to include:	K-0 S-0	K-1 S-0
	10.4.1 Wet, dry, preaction and deluge systems		
	10.4.2 Operational water supply		
	10.4.3 Exposure protection		
	10.4.4 Rescue		
	10.4.5 Post-fire operations to include:		
	10.4.5.1 Shutoff		
	10.4.5.2 Restoration of operations		
	10.4.5.3 Alarm system		
	11. Overhaul - After completing this module, the student will be able to:		
200 (263-264) (281-287)	11.1 Identify and describe the basic overhaul operation procedures used following a fire to include:	K-1 S-0	K-2 S-0
	11.1.1 Two reasons for overhaul		
	11.1.2 Preinspection after the fire		
	11.1.3 Personnel deployment		
	11.1.4 Operational procedures:		

IFSTA Reference	Competency	FF I	FF II
	11.1.4.1 What and where to inspect, to include: 11.1.4.1.1 Walls and ceilings 11.1.4.1.2 Above the fire 11.1.4.1.3 Shafts 11.1.4.1.4 Cabinets and compartments 11.1.4.1.5 Windows and door facings 11.1.4.2 Water removal		